OUTDOOR UNITS

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1. SPECIFICATIONS

Model			PUMY-P36NHMU(-BS)	PUMY-P48NHMU(-BS)
Power source			1-phase 208 / 230 V 60Hz	
Cooling capacity (Nominal) *1 (208 / 230V)		Btu/h	36,000	48,000
		kW	10.6	14.1
	Power input	kW	3.22 *3	4.97 *3
	Current input	A	14.23 / 15.74 *3	24.0 / 21.7 *3
	COP (kW / kW)		3.29	2.83
Temp. range of cooling	Indoor		59 to 75˚ F W.B. (15 to 24˚ C W.B.)	
	Outdoor		23 to 115˚ F D.B. (-5 to 46˚ C D.B.) 50 to 115˚ F D.B.(10 to 46˚ C D.B.): in case of connecting PKFY-P06/P08 type indoor unit.	
Heating capacity (Nominal) *2 (208 / 230V)		Btu/h	40,000	54,000
		kW	11.7	15.8
	Power input	kW	2.93 *3	4.88 *3
	Current input	A	12.88 / 14.24 *3	23.6 / 21.3 *3
	COP (kW / kW)		3.99	3.23
Temp. range of heating	Indoor		59 to 81˚ F D.B. (15 to 27˚ C D.B.)	
	Outdoor		0 to 60˚ F W.B. (-18 to 15.5˚ C W.B.)	
Indoor unit	Total capacity		50-130% of outdoor unit capacity	50-130% of outdoor unit capacity
connectable	Model / Quantity		P06-P36 / 1-6	P06-P54 / 1-8
Sound pressure level (measured in anechoic room)		dB <A>	49 / 51	50 / 52
Diameter of refrigerant pipe (O.D.)	Liquid (High pressure)	in. (mm)	3/8 (9.52) Flare (total length>=393ft. [120m])	3/8 (9.52) Flare (total length>=393ft. [120m])
	Gas (Low pressure)	in. (mm)	5/8 (15.88) Flare	5/8 (15.88) Flare
External finish			Galvanized sheets (+powder coating for -BS type) *4 <MUNSELL 3Y 7.8/1.1>	
External dimension H x W x D		in.	53-5/32 x 37-13/32 x 13	53-5/32 x 37-13/32 x 13
		mm	1,350 x 950 x 330	1,350 x 950 x 330
Net weight		lbs(kg)	287 (130)	287 (130)
Heat exchanger			Salt-resistant cross fin & copper tube	Salt-resistant cross fin & copper tube
Compressor	Type		Inverter scroll hermetic comp.	Inverter scroll hermetic comp.
	Manufacturer		SHIZUOKA Works,MITSUBISHI ELECTRIC CORPORATION	
	Operating Range		41-100%	33-100%
	Starting method		Inverter	Inverter
	Lubricant		FV50S	FV50S
FAN	Airflow rate	CFM	3,530	3,530
		m3 / min	100	100
		L / s	1,667	1,667
	External static press.	in.WG(Pa)	0 (0)	0 (0)
	Type x Quantity		Propeller fan x 2	Propeller fan x 2
	Control, Driving mechanism		DC-control, Direct-driven	DC-control, Direct-driven
HIC circuit (HIC: Heat Inter-Changer)			-	
Protection	High pressure protection		High pressure sensor, High pressure switch 601 psi (4.15 MPa)	
	Inverter circuit (COMP., FAN)		Over-current protection,Over-heat protection	
	Compressor		Discharge thermo protection,Over-current protection	
	Fan motor		Over-heat protection,Voltage protection	
Minimum Circuit Ampacity		A	26	26
Recommended Fuse/Breaker Size		A	30	30
Maximum Fuse Size		A	40	40
Defrost method			Auto-defrost mode (Reversed refrigerant circle)	
Refrigerant	Type x Original charge	lbs + oz (kg)	R410A x (18 lbs + 12 oz) (8.5kg)	R410A x (18 lbs + 12 oz) (8.5kg)
	Control		Indoor LEV	
Drawing	External		BK01B409	
	Wiring		RG79V166	
Standard attachment	Document		Installation Manual	
	Accessory		Grounded lead wire x 2 , Conduit plate	
Optional parts			Joint: CMY-Y62-G-E Header: CMY-Y64/68-G-E	
			Air Outlet Guide (One piece, requires two pieces): PAC-SG59SG-E Wind Baffle (One piece, requires two pieces): WB-PA2 Drain Pan: PAC-SG64DP-E Drain Socket: PAC-SG61DS-E / PAC-SH71DS-E	
Remark	Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. 3. For details on the electrical data needed for installing these units, see the S-Series System Design section. 4. For information on standard anti-corrosion protection and -BS treatment, see the S-Series System Design section.			

Note:	*1 Nominal cooling conditions	*2 Nominal heating conditions	Unit converter
Indoor:	80degF D.B./ 67degF W.B.	70degF D.B.	kcal =kW x 860
	(26.7degC D.B./ 19.4degC W.B.)	(21.1degC D.B.)	BTU/h =kW x 3,412
Outdoor:	95degF D.B. (35degC D.B.)	47degF D.B./ 43degF W.B. (8.3degC D.B./ 6.1degC W.B.)	cfm =m^3/min x 35.31
			lb =kg / 0.4536
Pipe length:	25ft.(7.6m)	25ft.(7.6m)	* Above specification data is subject to rounding variation.
Level difference:	0ft.(0m)	0ft.(0m)	
* Due to continuing improvement, above specifications may be subject to change without notice.			

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1. SPECIFICATIONS

Model				PUMY-P60NKMU(-BS)
Power source				1-phase 208 / 230 V 60Hz
Cooling capacity (Nominal) *1 (208 / 230V)			Btu/h	60,000
			kW	17.5
	Power input		kW	4.80
	Current input		A	21.5
	COP (kW / kW)			12.5
Temp. range of cooling	Indoor			59 to 75˚ F W.B. (15 to 24˚ C W.B.)
	Outdoor			23 to 115˚ F D.B. (-5 to 46˚ C D.B.)
Heating capacity (Nominal) *2 (208 / 230V)			Btu/h	66,000
			kW	19.3
	Power input		kW	6.15
	Current input		A	27.6
	COP (kW / kW)			3.14
Temp. range of heating	Indoor			59 to 81˚ F D.B. (15 to 27˚ C D.B.)
	Outdoor			-4 to 60˚ F W.B. (-20 to 15.5˚ C W.B.)
Indoor unit connectable	Total capacity			50-130% of outdoor unit capacity
	Model / Quantity			P06-P72 / 1-12
Sound pressure level (measured in anechoic room)			dB <A>	58 / 59
Diameter of refrigerant pipe (O.D.)	Liquid (High pressure)		in. (mm)	3/8 (9.52) Flare
	Gas (Low pressure)		in. (mm)	3/4 (19.05) Flare
External finish				Galvanized sheets (+powder coating for -BS type) *4 <MUNSELL 3Y 7.8/1.1>
External dimension H x W x D			in.	52-11/16 x 41-11/32 x 13
			mm	1,388 x 1,050 x 330
Net weight			lbs(kg)	313 (142)
Heat exchanger				Salt-resistant cross fin & copper tube
Compressor	Type			Inverter scroll hermetic comp.
	Manufacturer			SHIZUOKA Works,MITSUBISHI ELECTRIC CORPORATION
	Operating Range	Cooling		38-100%
		Heating		29-100%
	Starting method			Inverter
	Lubricant			FV50S
FAN	Airflow rate		CFM	4,940
			m3 / min	140
			L / s	2,340
	External static press.		in.WG(Pa)	0 (0)
	Type x Quantity			Inverter scroll hermetic compressor x 1
	Control, Driving mechanism			DC-control, Direct-driven
HIC circuit (HIC: Heat Inter-Changer)				Copper pipe, tube-in-tube structure
Protection	High pressure protection			High pressure sensor, High pressure switch 601 psi (4.15 MPa)
	Inverter circuit (COMP., FAN)			Over-current protection,Over-heat protection
	Compressor			Over-heat protection
	Fan motor			Over-heat protection,Voltage protection
Minimum Circuit Ampacity			A	35
Recommended Fuse/Breaker Size			A	40
Maximum Fuse Size			A	42
Refrigerant	Type x Original charge		lbs (kg)	R410A x 11.2 (5.1)
	Control			LEV and HIC circuit
Drawing	External			NKM-BK01-J606
	Wiring			NKM-BH79-B597
Standard attachment	Document			Installation Manual
	Accessory			Grounded lead wire x 2 , Conduit plate
Optional parts				Joint: CMY-Y62-G-E Header: CMY-Y64/68-G-E
				Air Outlet Guide PAC-SH96SG-E Wind Baffle WB-PA3 Drain Pan: PAC-SH97DP-E Drain Socket: PAC-SH71DS-E
Remark	Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. 3. For details on the electrical data needed for installing these units, see the S-Series System Design section. 4. For information on standard anti-corrosion protection and -BS treatment, see the S-Series System Design section.			

Note:	*1 Nominal cooling conditions	*2 Nominal heating conditions	Unit converter
Indoor:	80degF D.B./ 67degF W.B.	70degF D.B.	kcal =kW x 860
	(26.7degC D.B./ 19.4degC W.B.)	(21.1degC D.B.)	BTU/h =kW x 3,412
Outdoor:	95degF D.B. (35degC D.B.)	47degF D.B./ 43degF W.B. (8.3degC D.B./ 6.1degC W.B.)	cfm =m^3/min x 35.31
			lb =kg / 0.4536
Pipe length:	25ft.(7.6m)	25ft.(7.6m)	* Above specification data is subject to rounding variation.
Level difference:	0ft.(0m)	0ft.(0m)	
* Due to continuing improvement, above specifications may be subject to change without notice.			

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1. SPECIFICATIONS

Efficiency Ratings

Model	IDU Type	EER (95° F) *1	SEER	HSPF	COP*1
PUMY-P36NHMU (-BS)	Non-ducted	-	14.3	8.75	2.59 / 2.39
	Mixed Ducted and Non-ducted	-	14.3	8.2	2.71 / 2.68
	Ducted	-	14.3	9.3	2.51 / 2.38
PUMY-P48NHMU (-BS)	Non-ducted	-	15.5	8.7	2.32 / 2.22
	Mixed Ducted and Non-ducted	-	15.0	8.7	2.56 / 2.13
	Ducted	-	14.5	8.7	2.60 / 2.19
PUMY-P68NKMU (-BS)	Non-ducted (24+24+06+06)	11.3	16.7	10.6	2.45 / 2.17
	Mixed Ducted and Non-ducted	11.75	16.6	10.7	3.70 / 3.14
	Ducted (06+06+06+18+24)	12.5	16.5	10.8	
Note:	*1. Efficiency values based on AHRI 1230 test method.				

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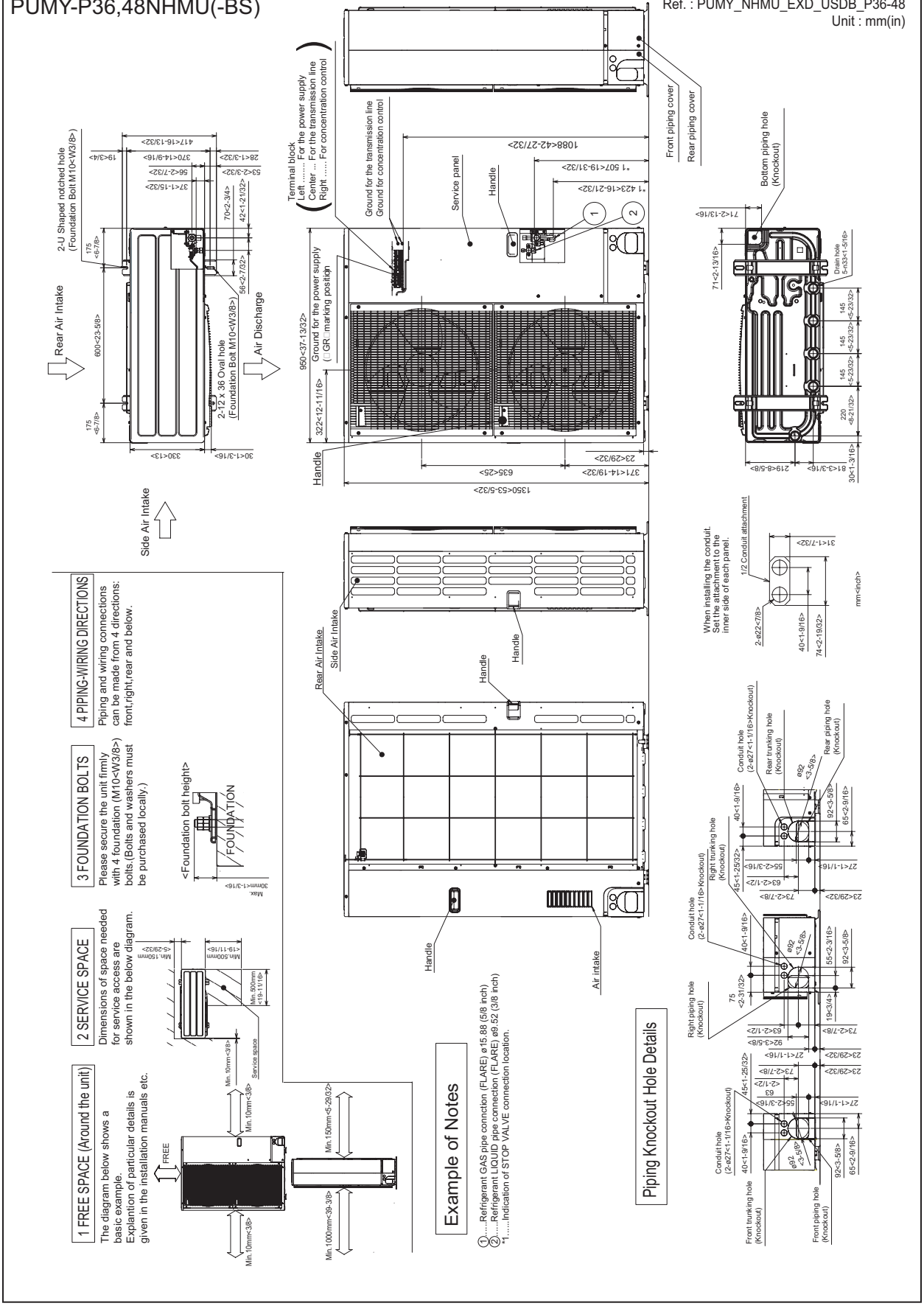
2. EXTERNAL DIMENSIONS

PUMY-P36,48NHMU(-BS)

Ref. : PUMY_NHMU_EXD_USDB_P36-48
Unit : mm(in)



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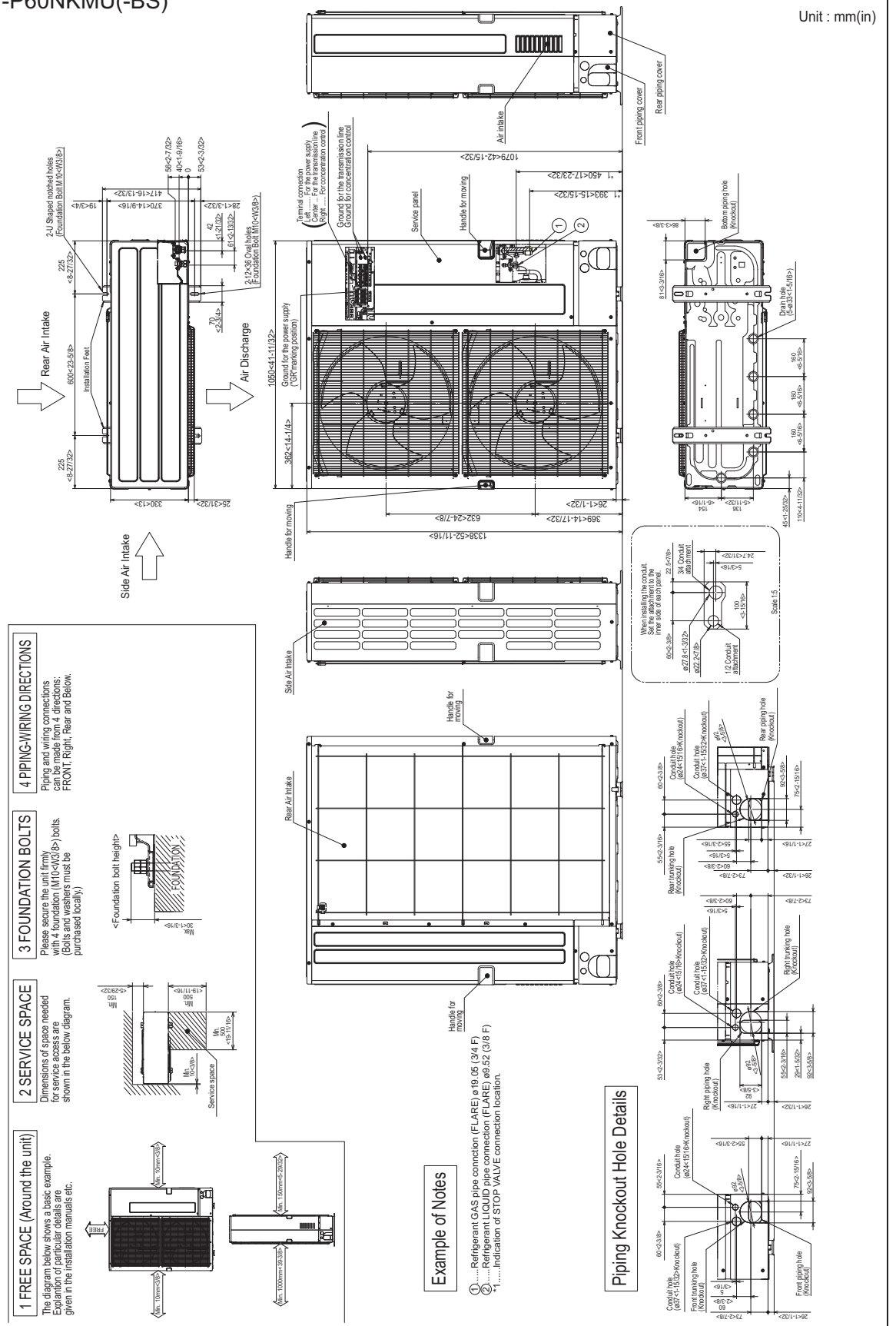
2. EXTERNAL DIMENSIONS

PUMY-P60NKMU(-BS)

Unit : mm(in)


Rear Air Intake
Side Air Intake
Air Discharge
Installation Feet
Handle for moving
Service panel
Air intake
Front piping cover
Rear piping cover
Side Air Intake
Rear Air Intake
Handle for moving
Bottom piping hole (Knockout)
Drain hole (4-ø30<4-1 5/16">)
When installing the conduit, knock out the knockouts in the inner side of each panel.
34 Conduit attachment
12 Conduit attachment
Scale 1:5
Rear piping hole (Knockout)
Rear trunking hole (Knockout)
Right trunking hole (Knockout)
Right piping hole (Knockout)
Front trunking hole (Knockout)
Front piping hole (Knockout)
Conduit hole (ø24-1 5/16"Knockout)
Conduit hole (ø37-1 15/32"Knockout)
Piping Knockout Hole Details
1 FREE SPACE (Around the unit)
The diagram below shows a basic example. Explantion of particular details are given in the installation manuals etc.
2 SERVICE SPACE
Dimensions of space needed for service access are shown in the below diagram.
Service space
3 FOUNDATION BOLTS
Please secure the unit firmly with 4 foundation (M10<W3/8">) bolts. (Bolts and washers must be purchased locally)
<Foundation bolt height>
FOUNDATION
4 PIPING-WIRING DIRECTIONS
Piping and wiring connections can be made from 4 directions: FRONT, Right, Rear and Below.
Example of Notes
①.....Refrigerant GAS pipe connction (FLARE) ø19.05 (3/4 F)
②.....Refrigerant LIQUID pipe connection (FLARE) ø9.52 (3/8 F)
*1.....Indication of STOP VALVE connection location.

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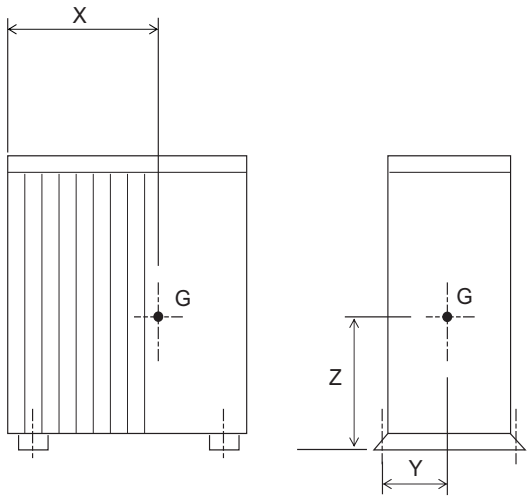
3. CENTER OF GRAVITY

PUMY-P36, 48NHMU(-BS)

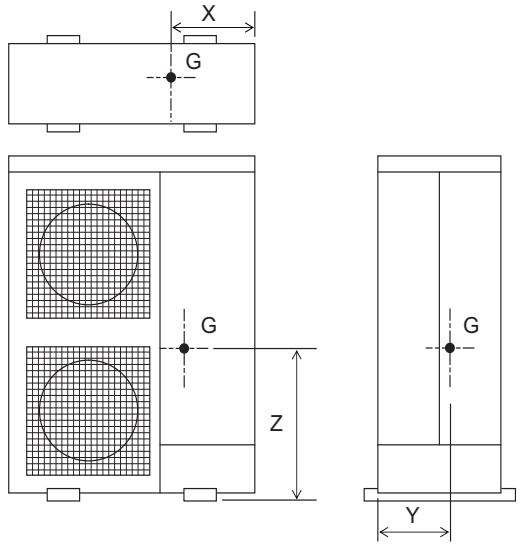
Unit : mm[in.]



Model	X	Y	Z
PUMY-P36NHMU	590(23-1/4)	185(7-5/16)	500(19-11/16)
PUMY-P48NHMU	590(23-1/4)	185(7-5/16)	500(19-11/16)

PUMY-P60NKMU(-BS)

Unit : mm[in.]



Model	X	Y	Z
PUMY-P60NKMU	385(15-3/16)	175(6-15/16)	507(20)

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PUMY-P36,48NHMU(-BS)

Ref. : PUMY-NHMU_EWD_USDB_P36-48_2

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block <Power Supply>	P.B.	Power Circuit Board	SW6	Switch<Function Selection>
TB3	Terminal Block <Comunication Line>	TABU/V/W	Connection Terminal<U/V/W-Phase>	SW7	Switch<Function Selection>
TB7	Terminal Block <Centralized Control Line>	TABS/T	Connection Terminal<L/N-Phase>	SW8	Switch<Function Selection>
MC	Motor For Compressor	TABP1/P2/P	Connection Terminal<DC Voltage>	SWU1	Switch<Unit Address Selection, 1st digit>
MF1,MF2	Fan Motor	TABN1/N2/N	Connection Terminal<DC Voltage>	SWU2	Switch<Unit Address Selection, 2nd digit>
21S4	Solenoid Valve<Four-Way Valve>	DS2,DS3	Diode Bridge	CNLVB	Connector<To N.F. Board CN52C> (Symbol of Board is CNLVB)
63H	High Pressure Switch	IPM	Power Module		
63L	Low Pressure Switch	N.F.	Noise Filter Circuit Board	SS	Connector<Connection For Option>
63HS	High Pressure Sensor	LI/LO	Connection Terminal<L-Phase>	CN3D	Connector<Connection For Option>
SV1	Solenoid Valve<Bypass valve>	NI/NO	Connection Terminal<N-Phase>	CN3S	Connector<Connection For Option>
TH3	Thermistor<Outdoor Pipe>	EI,E2	Connection Terminal<Ground>	CN3N	Connector<Connection For Option>
TH4	Thermistor<Discharge>	52C	52C Relay	CN51	Connector<Connection For Option>
TH6	Thermistor<Low Pressure Saturated>	C.B.	Controller Circuit Board	LED1,LED2	LED<Operation Inspection Display>
TH7	Thermistor<Outdoor>	SW1	Switch<Display Selection>	LED3	LED<Power Supply to Main Microcomputer>
TH8	Thermistor<Heatsink>	SW2	Switch<Function Selection>	F1,F2	Fuse<T6,3AL250V>
DCL	Reactor	SW3	Switch<Test Run>	X501~505	Relay
ACTM	Active Filter Module	SW4	Switch<Model Selection>	M-NET P.B.	M-NET Power Circuit Board
CE	Main Smoothing Capacitor	SW5	Switch<Function Selection>	TP1	ConnectionTerminal<Ground>

Caution for electrical work

Use copper supply wires.

Cautions when Servicing

- ⚠WARNING: When the main supply is turned off, the voltage [340 V] in the main capacitor will drop to 20 V in approx. 2 minutes (input voltage: 240 V). When servicing, make sure that LED1, LED2 on the outdoor circuit board goes out, and then wait for at least 1 minute.
- Components other than the outdoor board may be faulty: Check and take corrective action, referring to the service manual. Do not replace the outdoor board without checking.

NOTES:

1.Refer to the wiring diagrams of the indoor units for details on wiring of each indoor unit.

Self-diagnosis function

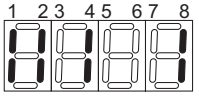
The indoor and outdoor units can be diagnosed automatically using the self-diagnosis switch (SW1) and LED1, LED2 (LED indication) found on the multi-controller of the outdoor unit.

LED indication : Set all contacts of SW1 to OFF.

- During normal operation
- The LED indicates the drive state of the controller in the outdoor unit.

Bit	1	2	3	4	5	6	7	8
Indication	Compressor operated	52C	21S4	SV1	(SV2)	-	-	Always lit

[Example]
When the compressor and SV1 are turned during cooling operation.



- When fault requiring inspection has occurred

The LED alternately indicates the inspection code and the location of the unit in which the fault has occurred.

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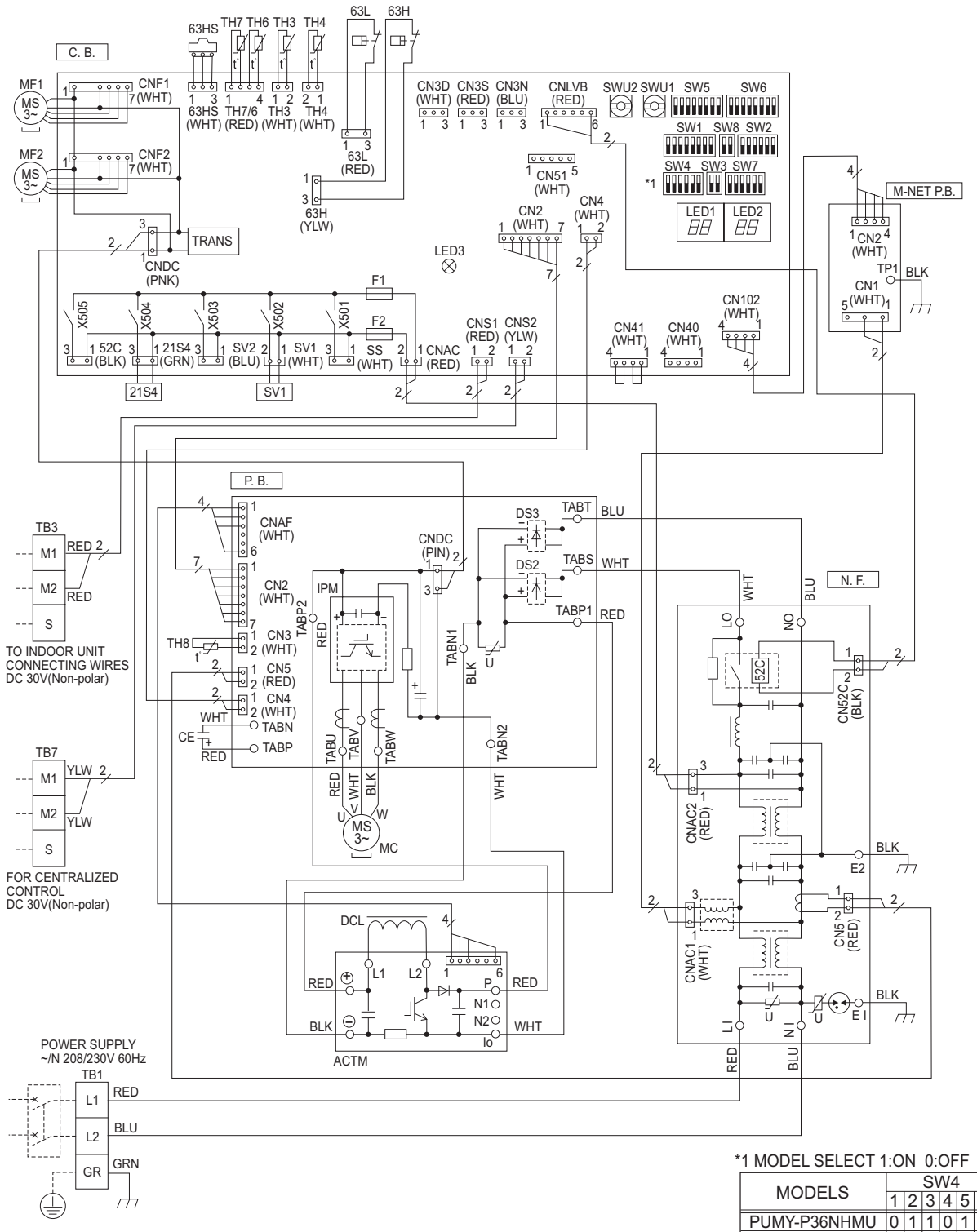
PUMY-P36, 48NHMU(-BS)



*1 MODEL SELECT 1:ON 0:OFF

MODELS	SW4					
	1	2	3	4	5	6
PUMY-P36NHMU	0	1	1	0	1	0
PUMY-P48NHMU	0	1	1	0	0	1

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PUMY-P60NKMU(-BS)

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block 〈Power Supply〉	DCL	Reactor	SW7	Switch 〈Function Selection〉
TB3	Terminal Block 〈Comunication Line〉	CB	Main Smoothing Capacitor	SW8	Switch 〈Model Selection〉
TB7	Terminal Block 〈Centralized Control Line〉	P.B.	Power Circuit Board	SWU1	Switch 〈Unit Address Selection, 1st digit〉
MC	Motor For Compressor	TABU/V/W	Connection Terminal 〈U/V/W-Phase〉	SWU2	Switch 〈Unit Address Selection, 2nd digit〉
MF1,MF2	Fan Motor	TABLI/NI	Connection Terminal 〈L/N-Phase〉	SS	Connector 〈Connection For Option〉
21S4	Solenoid Valve 〈Four-Way Valve〉	TABP2	Connection Terminal 〈DC Voltage〉	CN3D	Connector 〈Connection For Option〉
63H	High Pressure Switch	TABN2	Connection Terminal 〈DC Voltage〉	CN3S	Connector 〈Connection For Option〉
63HS	High Pressure Sensor	DCL1,DCL2	Connection Terminal 〈Reactor〉	CN3N	Connector 〈Connection For Option〉
63LS	Low Pressure Sensor	IGBT	Power Module	CN51	Connector 〈Connection For Option〉
SV1	Solenoid Valve 〈Bypass Valve〉	EI,E2,E3,E4	Connection Terminal 〈Ground〉	LED1,LED2	LED 〈Operation Inspection Display〉
TH2	Thermistor 〈HIC Pipe〉	MULTI.B.	Controller Circuit Board	LED3	LED 〈Power Supply to Main Microcomputer〉
TH3	Thermistor 〈Outdoor Pipe〉	SW1	Switch 〈Display Selection〉	F1,F2	Fuse 〈T6. 3AL250V〉
TH4	Thermistor 〈Compressor〉	SW2	Switch 〈Function Selection〉	X501～505	Relay
TH6	Thermistor 〈Low Pressure Saturated〉	SW3	Switch 〈Test Run〉	M-P.B.	M-NET Power Circuit Board
TH7	Thermistor 〈Outdoor〉	SW4	Switch 〈Model Selection〉	TP1	ConnectionTerminal 〈Ground〉
TH8	Thermistor 〈Heat Sink〉	SW5	Switch 〈Function Selection〉		
LEV-A,LEV-B	Electronic Expansion Valve	SW6	Switch 〈Function Selection〉		

Caution for electrical work

- Use copper supply wires.

Cautions when servicing

- ⚠ WARNING: When the main supply is turned off, the voltage [340 V] in the main capacitor will drop to 20 V in approx. 2 minutes (input voltage: 230 V). When servicing, make sure that LED1, LED2 on the outdoor circuit board goes out, and then wait for at least 1 minute.
- Components other than the outdoor board may be faulty: Check and take corrective action, referring to the service manual. Do not replace the outdoor board without checking.

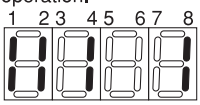
NOTES:

1.Refer to the wiring diagrams of the indoor units for details on wiring of each indoor unit.
Self-diagnosis function
The indoor and outdoor units can be diagnosed automatically using the self-diagnosis switch (SW1) and LED1, LED2 (LED indication) found on the multi-controller of the outdoor unit.
LED indication : Set all contacts of SW1 to OFF.

- During normal operation
- The LED indicates the drive state of the controller in the outdoor unit.

Bit	1	2	3	4	5	6	7	8
Indication	Compressor operated	52C	21S4	SV1	(SV2)	—	—	Always lit

〔Example〕
When the compressor and SV1 are turned during cooling operation.



- When fault requiring inspection has occurred
The LED alternately indicates the inspection code and the location of the unit in which the fault has occurred.

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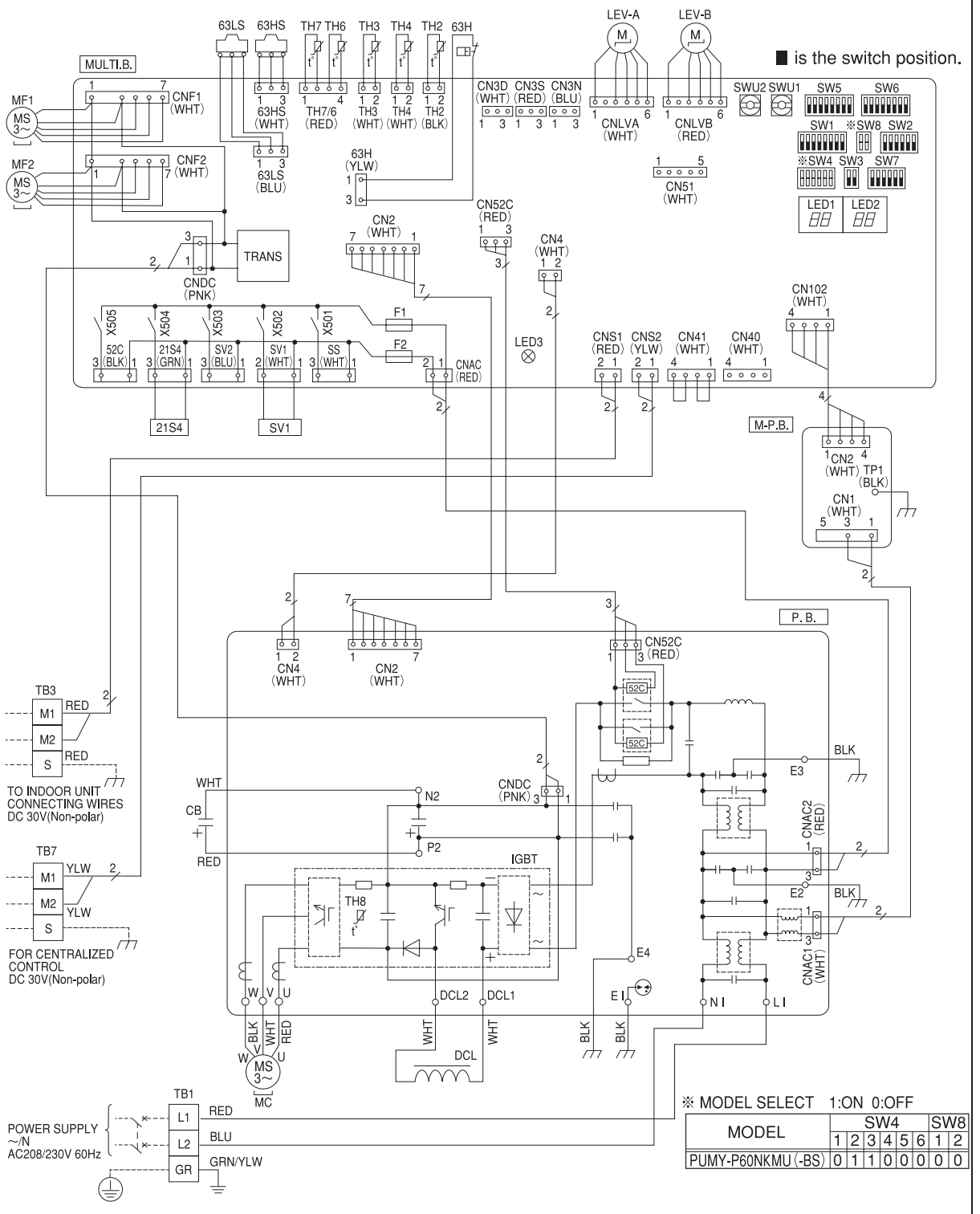
PUMY-P60NKMU(-BS)



※ MODEL SELECT 1:ON 0:OFF

MODEL	SW4						SW8	
	1	2	3	4	5	6	1	2
PUMY-P60NKMU(-BS)	0	1	1	0	0	0	0	0

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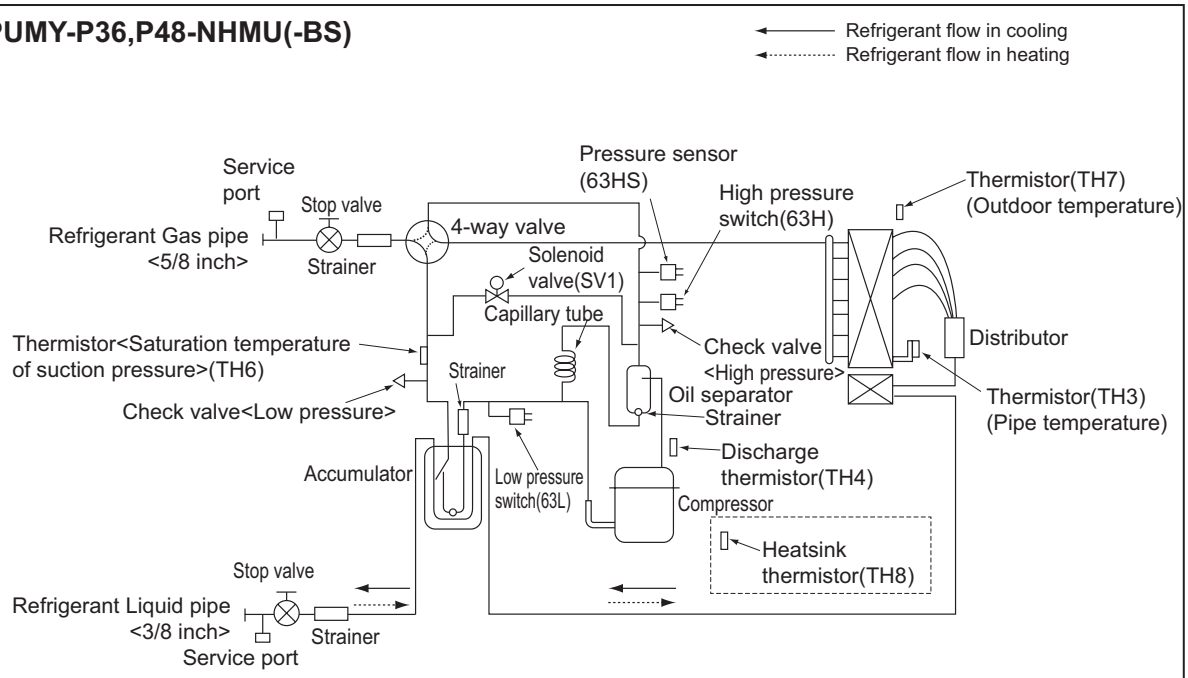
PUMY-P36,P48-NHMU(-BS)



Capillary tube (for oil separator) : ø2.5 X ø0.8 X L1000(mm) [ø(3/32) X ø(1/32) X L(39-1/2)] inch

Refrigerant pipng specifications <dimensions of flared connector>

Unit: mm<inch>

Capacity / Item		Liquid piping	Gas pipng
Indoor unit	P06, P08, P12, P15, P18	ø6.35<1/4">Flare	ø12.7<1/2">Flare
	P24, P30, P36, P48, P54	ø9.52<3/8">Flare	ø15.88<5/8">Flare
Outdoor unit	P36, P48	ø9.52<3/8">Flare	ø15.88<5/8">Flare

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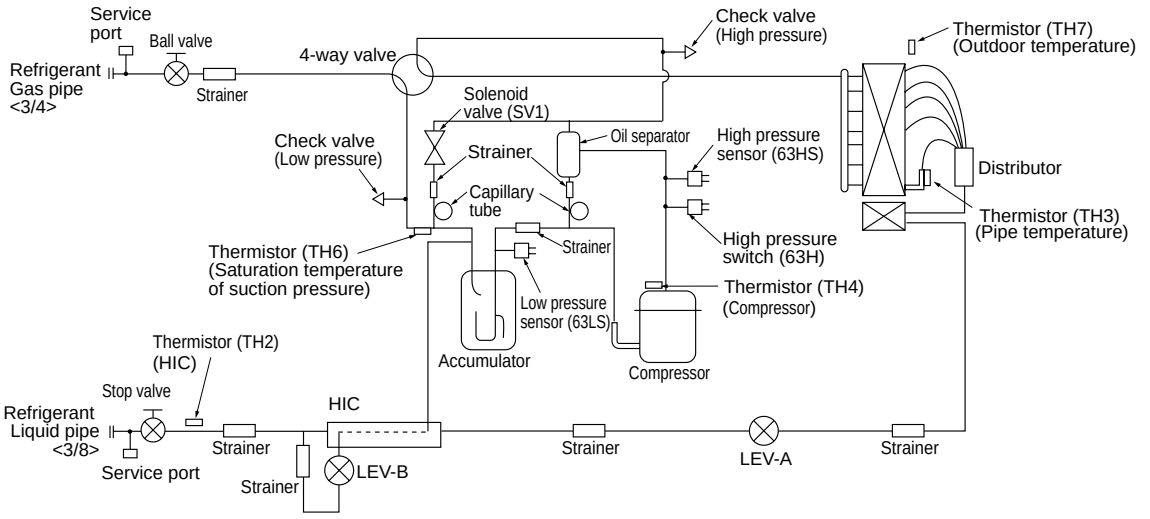
PUMY-P60NKMU
PUMY-P60NKMU-BS

Unit: mm <inch>



Capillary tube for oil separator : ϕ2.5 × ϕ0.8 × L800
Capillary tube for solenoid valve : ϕ4.0 × ϕ3.0 × L500

Refrigerant piping specifications <dimensions of flared connector>

Capacity / Item		Liquid piping	Gas piping
Indoor unit	P06, P08, P12, P15, P18	ϕ6.35 <1/4>	ϕ12.7 <1/2>
	P24, P30, P36, P48, P54	ϕ9.52 <3/8>	ϕ15.88 <5/8>
	P72	ϕ9.52 <3/8>	ϕ19.05 <3/4>
Outdoor unit	P60	ϕ9.52 <3/8>	ϕ19.05 <3/4>

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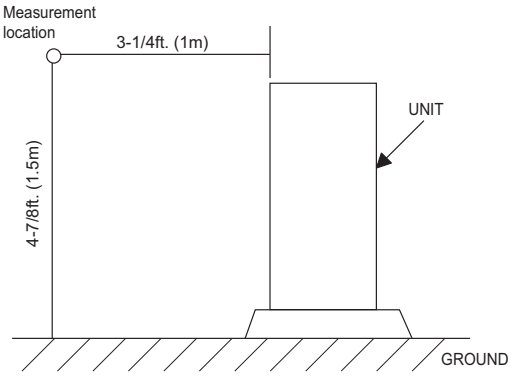
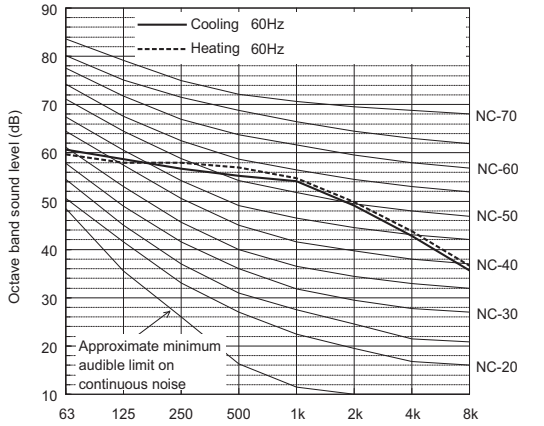
6. SOUND PRESSURE LEVELS

Measurement condition
PUMY-P36,48NHMU(-BS)/P60NKMU(-BS)

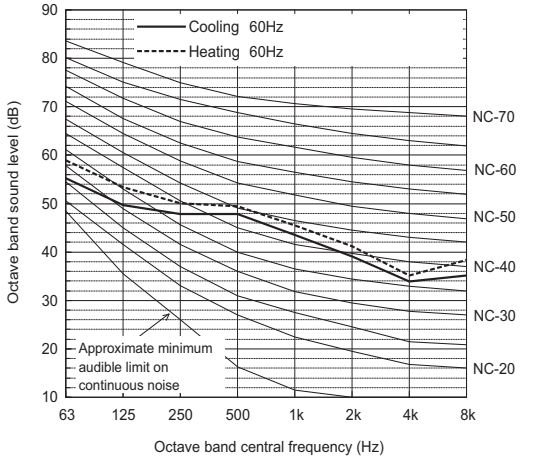


Sound level of PUMY-P60NKMU(-BS)



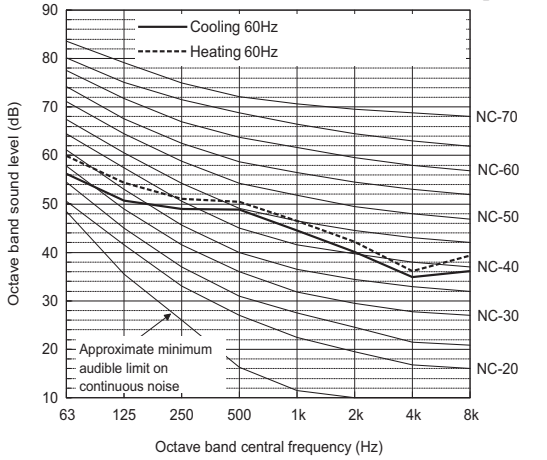
		63	125	250	500	1k	2k	4k	8k	dB(A)
Cooling	60Hz	60.7	58.7	56.7	55.2	54.1	49.1	42.8	35.6	58.0
Heating	60Hz	59.7	58.0	58.0	56.9	54.7	49.8	43.8	36.6	59.0

Sound level of PUMY-P36NHMU(-BS) Ref.:PUMY_NHMU_NCC_USDB_P36



		63	125	250	500	1k	2k	4k	8k	dB(A)
Cooling	60Hz	55.2	49.7	47.9	47.8	43.5	39.1	33.9	35.1	49.0
Heating	60Hz	58.9	53.4	50.1	49.4	45.5	41.2	35.1	38.3	51.0

Sound level of PUMY-P48NHMU(-BS) Ref.:NC_PUMY-P48



		63	125	250	500	1k	2k	4k	8k	dB(A)
Cooling	60Hz	56.2	50.7	48.9	48.8	44.5	40.1	34.9	36.1	50.0
Heating	60Hz	59.9	54.4	51.1	50.4	46.5	42.2	36.1	39.3	52.0

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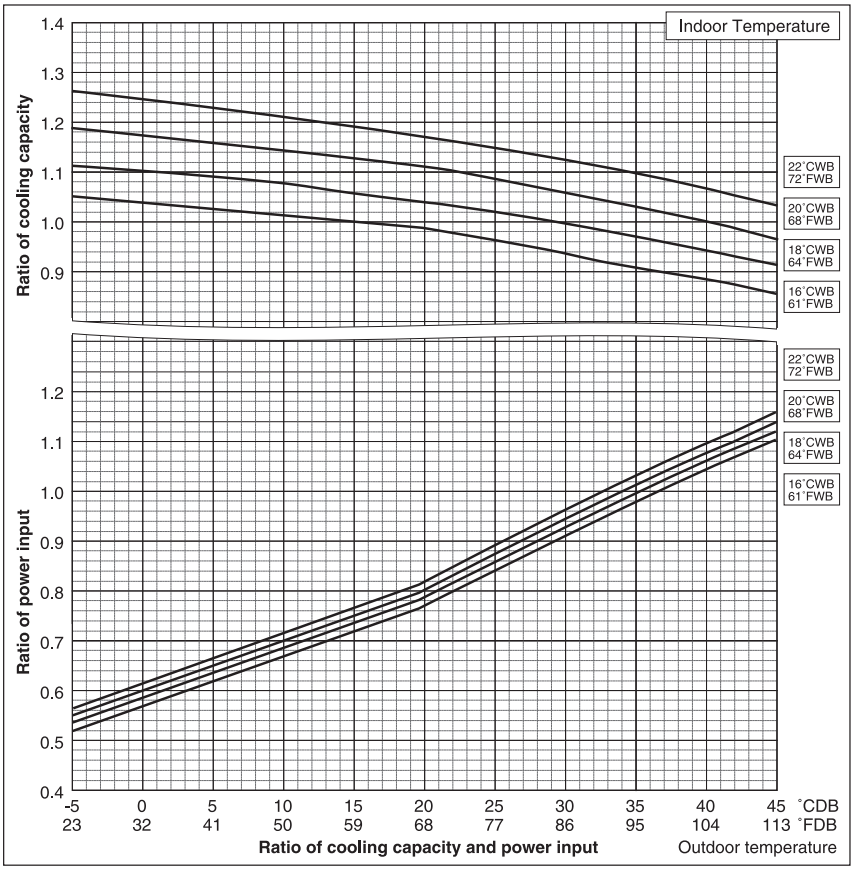
7. CAPACITY TABLES

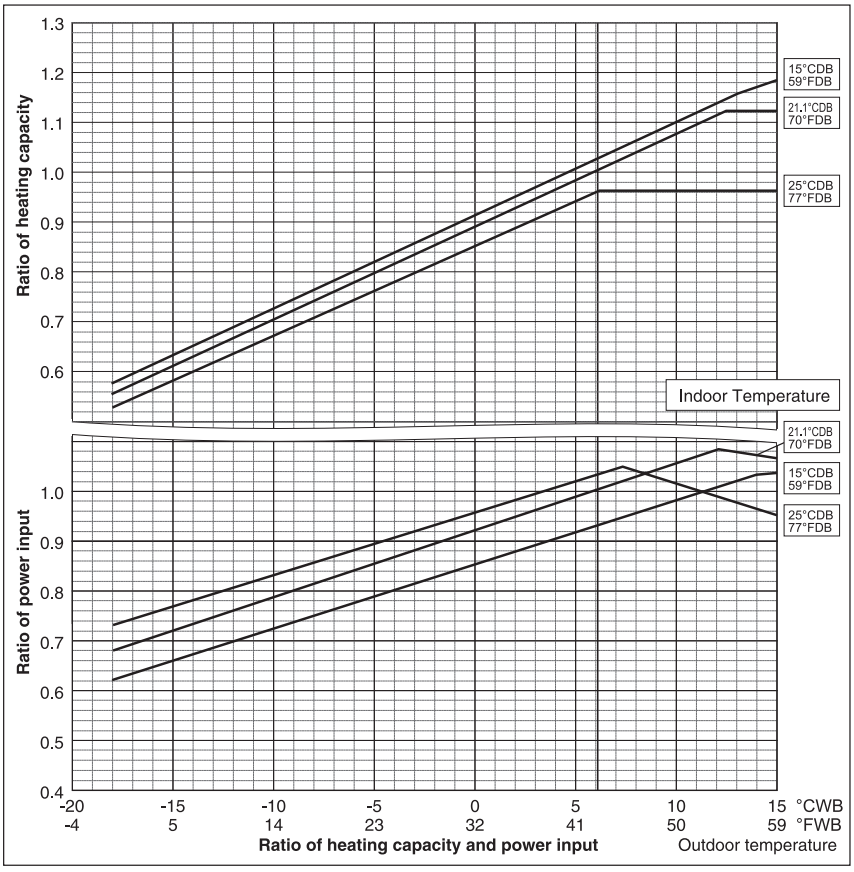
7-1. Correction by Temperature

CITY MULTI systems could have various capacities at different design temperatures. Using the nominal cooling/heating capacity values and the ratios below, the capacity can be found for different temperatures.

PUMY-		P36NHMU	P48NHMU
Nominal Cooling Capacity	kW	10.6	14.1
	BTU/h	36,000	48,000
Input	kW	3.22	4.97



PUMY-		P36NHMU	P48NHMU
Nominal Heating Capacity	kW	11.7	15.8
	BTU/h	40,000	54,000
Input	kW	2.93	4.88



Ref:cbt_p100-140

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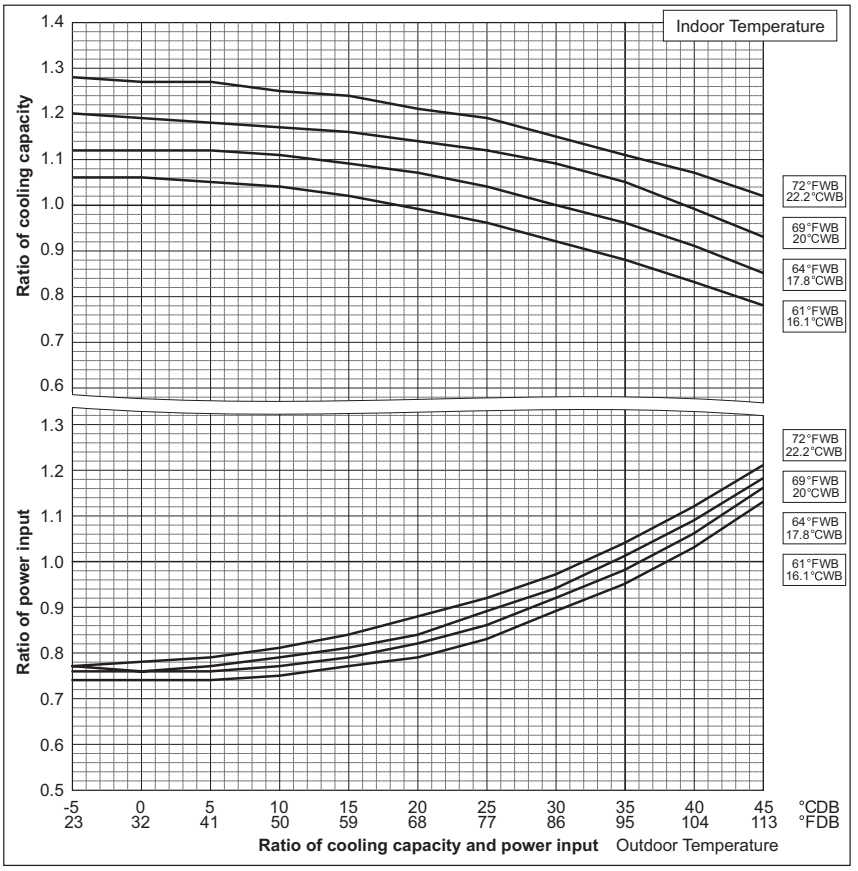
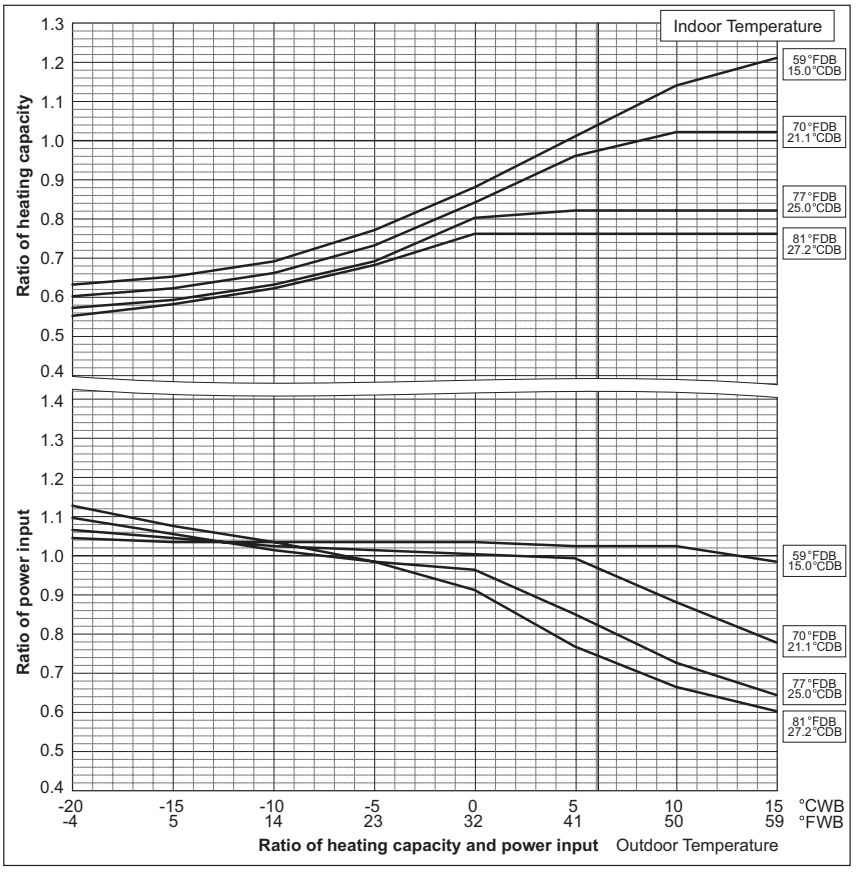
7. CAPACITY TABLES

PUMY-			P60NKMU	
			Non-Ducted	Ducted
Nominal cooling capacity		BTU/h	60,000	
		kW	17.5	
	Input	kW	4.80	5.30



PUMY-			P60NKMU	
			Non-Ducted	Ducted
Nominal heating capacity		BTU/h	66,000	
		kW	19.3	
	Input	kW	6.15	5.23



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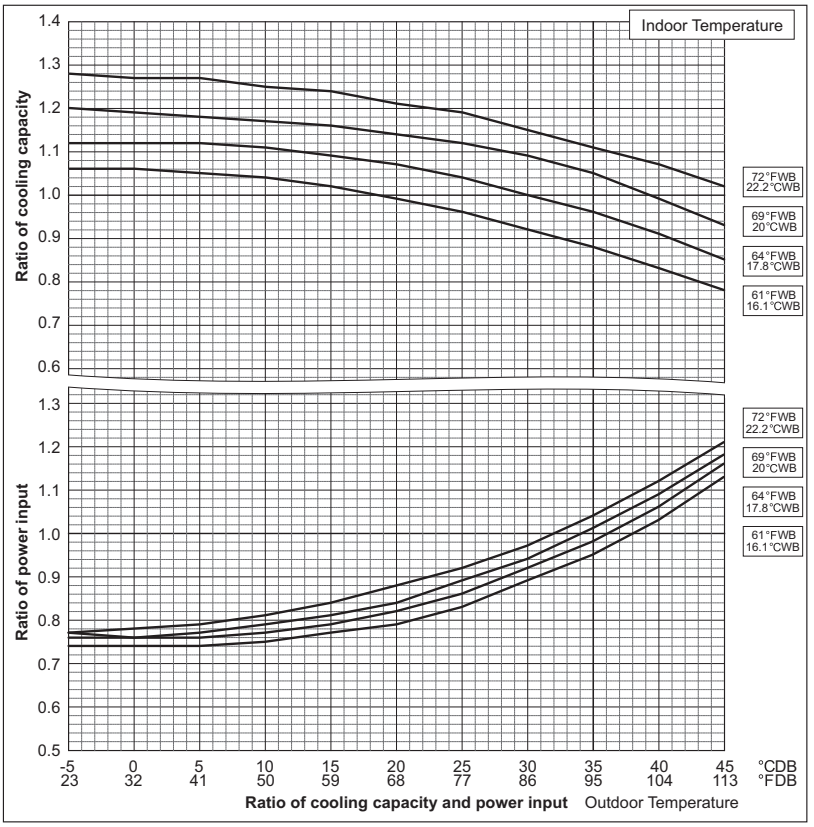
7. CAPACITY TABLES

7-1-1. Correction by Temperature (High Heating Performance Mode)

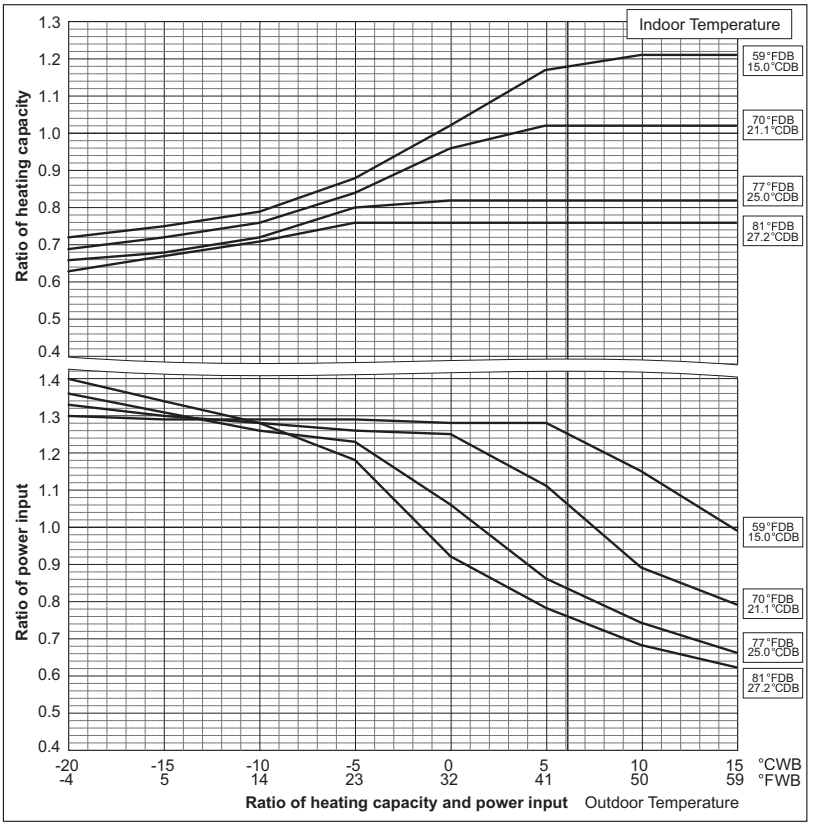
CITY MULTI systems could have various capacities at different design temperatures. Using the nominal cooling/heating capacity values and the ratios below, the capacity can be found for different temperatures.

To select high heating performance mode, DipSW 7-3 must be set to ON. (In the low ambient temperature, heating capacity and power input become higher than those under standard mode.)

PUMY-			P60NKMU	
			Non-Ducted	Ducted
Nominal cooling capacity		BTU/h	60,000	
		kW	17.5	
	Input	kW	4.80	5.30



PUMY-			P60NKMU	
			Non-Ducted	Ducted
Nominal heating capacity		BTU/h	66,000	
		kW	19.3	
	Input	kW	6.15	5.23



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7. CAPACITY TABLES

7-2. Correction by Total Indoor

CITY MULTI systems have different capacities and inputs when different combinations of indoor units with different total capacities are connected. Using following tables, the maximum capacity can be found to ensure the system is installed with enough capacity for a particular application.

7-2-1.PUMY-P36NHMU(-BS)

Total capacity of Indoor units*	Capacity(Btu/h)		Power Consumption(kW)		Current(A)/230V		Current(A)/208V	
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
18	18,000	20,200	1.38	1.45	6.1	6.4	6.8	7.1
19	19,000	21,300	1.45	1.52	6.4	6.7	7.1	7.4
20	20,000	22,400	1.52	1.60	6.7	7.0	7.4	7.8
21	21,000	23,500	1.60	1.67	7.1	7.4	7.8	8.1
22	22,000	24,700	1.68	1.75	7.4	7.7	8.2	8.5
23	23,000	25,800	1.76	1.83	7.8	8.0	8.6	8.9
24	24,000	26,900	1.85	1.91	8.2	8.4	9.0	9.3
25	25,000	28,000	1.94	1.98	8.6	8.7	9.5	9.6
26	26,000	29,200	2.04	2.06	9.0	9.1	9.9	10.0
27	27,000	30,300	2.14	2.15	9.4	9.4	10.4	10.4
28	28,000	31,400	2.24	2.23	9.9	9.8	10.9	10.8
29	29,000	32,500	2.35	2.31	10.4	10.2	11.5	11.2
30	30,000	33,700	2.46	2.40	10.9	10.5	12.0	11.7
31	31,000	34,800	2.58	2.48	11.4	10.9	12.6	12.1
32	32,000	35,900	2.70	2.57	11.9	11.3	13.2	12.5
33	33,000	37,000	2.82	2.66	12.5	11.7	13.8	12.9
34	34,000	38,200	2.95	2.75	13.0	12.1	14.4	13.4
35	35,000	39,300	3.08	2.84	13.6	12.5	15.1	13.8
36	36,000	40,000	3.22	2.93	14.2	12.9	15.7	14.2
37	36,200	40,200	3.23	2.92	14.3	12.9	15.8	14.2
38	36,400	40,400	3.25	2.89	14.3	12.7	15.9	14.1
39	36,600	40,700	3.26	2.86	14.4	12.6	15.9	13.9
40	36,900	40,900	3.27	2.84	14.5	12.5	16.0	13.8
41	37,100	41,100	3.28	2.81	14.5	12.3	16.0	13.6
42	37,300	41,300	3.30	2.78	14.6	12.2	16.1	13.5
43	37,500	41,600	3.31	2.75	14.6	12.1	16.2	13.4
44	37,700	41,800	3.32	2.72	14.7	11.9	16.2	13.2
45	37,900	42,000	3.34	2.69	14.7	11.8	16.3	13.1
46	38,100	42,200	3.35	2.66	14.8	11.7	16.4	12.9

Note)

1. In some combination patterns, numerical value of the heating data may differ slightly (CAPACITY : about several hundred Btu/h)
2. *. Indoor capacity is described by its model size. For example, PEFY-P08NMSU-ER2, its capacity is P08.

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7-2-2.PUMY-P48NHMU(-BS)

Total capacity of Indoor units*	Capacity(Btu/h)		Power Consumption(kW)		Current(A)/230V		Current(A)/208V	
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
24	24,000	26,900	2.11	2.32	9.2	10.2	10.2	11.2
25	25,000	28,000	2.20	2.41	9.6	10.5	10.6	11.6
26	26,000	29,200	2.29	2.50	10.0	10.9	11.1	12.1
27	27,000	30,300	2.38	2.59	10.4	11.3	11.5	12.5
28	28,000	31,400	2.48	2.68	10.8	11.7	12.0	13.0
29	29,000	32,500	2.58	2.78	11.3	12.1	12.4	13.4
30	30,000	33,700	2.68	2.87	11.7	12.6	12.9	13.9
31	31,000	34,800	2.78	2.97	12.2	13.0	13.4	14.4
32	32,000	35,900	2.89	3.07	12.6	13.4	14.0	14.8
33	33,000	37,000	3.00	3.17	13.1	13.9	14.5	15.3
34	34,000	38,200	3.11	3.28	13.6	14.3	15.0	15.8
35	35,000	39,300	3.23	3.38	14.1	14.8	15.6	16.3
36	36,000	40,400	3.35	3.49	14.6	15.2	16.2	16.9
37	37,000	41,500	3.47	3.60	15.2	15.7	16.8	17.4
38	38,000	42,700	3.60	3.71	15.7	16.2	17.4	17.9
39	39,000	43,800	3.72	3.82	16.3	16.7	18.0	18.5
40	40,000	44,900	3.85	3.93	16.8	17.2	18.6	19.0
41	41,000	46,000	3.99	4.05	17.4	17.7	19.3	19.6
42	42,000	47,200	4.12	4.17	18.0	18.2	19.9	20.1
43	43,000	48,300	4.26	4.28	18.6	18.7	20.6	20.7
44	44,000	49,400	4.41	4.41	19.3	19.3	21.3	21.3
45	45,000	50,500	4.55	4.53	19.9	19.8	22.0	21.9
46	46,000	51,700	4.70	4.65	20.5	20.3	22.7	22.5
47	47,000	52,800	4.85	4.78	21.2	20.9	23.4	23.1
48	48,000	54,000	4.97	4.88	21.7	21.3	24.0	23.6
49	48,300	54,200	4.98	4.83	21.8	21.1	24.1	23.3
50	48,500	54,300	4.99	4.79	21.8	20.9	24.1	23.2
51	48,700	54,400	5.00	4.75	21.8	20.8	24.1	23.0
52	48,900	54,500	5.01	4.71	21.9	20.6	24.2	22.8
53	49,100	54,600	5.01	4.67	21.9	20.4	24.2	22.6
54	49,300	54,800	5.02	4.63	21.9	20.2	24.3	22.4
55	49,600	54,900	5.03	4.59	22.0	20.1	24.3	22.2
56	49,800	55,000	5.04	4.55	22.0	19.9	24.3	22.0
57	50,000	55,100	5.04	4.51	22.0	19.7	24.4	21.8
58	50,200	55,200	5.05	4.47	22.1	19.5	24.4	21.6
59	50,400	55,300	5.06	4.43	22.1	19.4	24.4	21.4
60	50,600	55,500	5.07	4.39	22.1	19.2	24.5	21.2
61	50,800	55,600	5.07	4.35	22.2	19.0	24.5	21.0
62	51,100	55,700	5.08	4.31	22.2	18.8	24.6	20.8

Note)

1. In some combination patterns, numerical value of the heating data may differ slightly (CAPACITY : about several hundred Btu/h)
2. *. Indoor capacity is described by its model size. For example, PEFY-P08NMSU-ER2, its capacity is P08.

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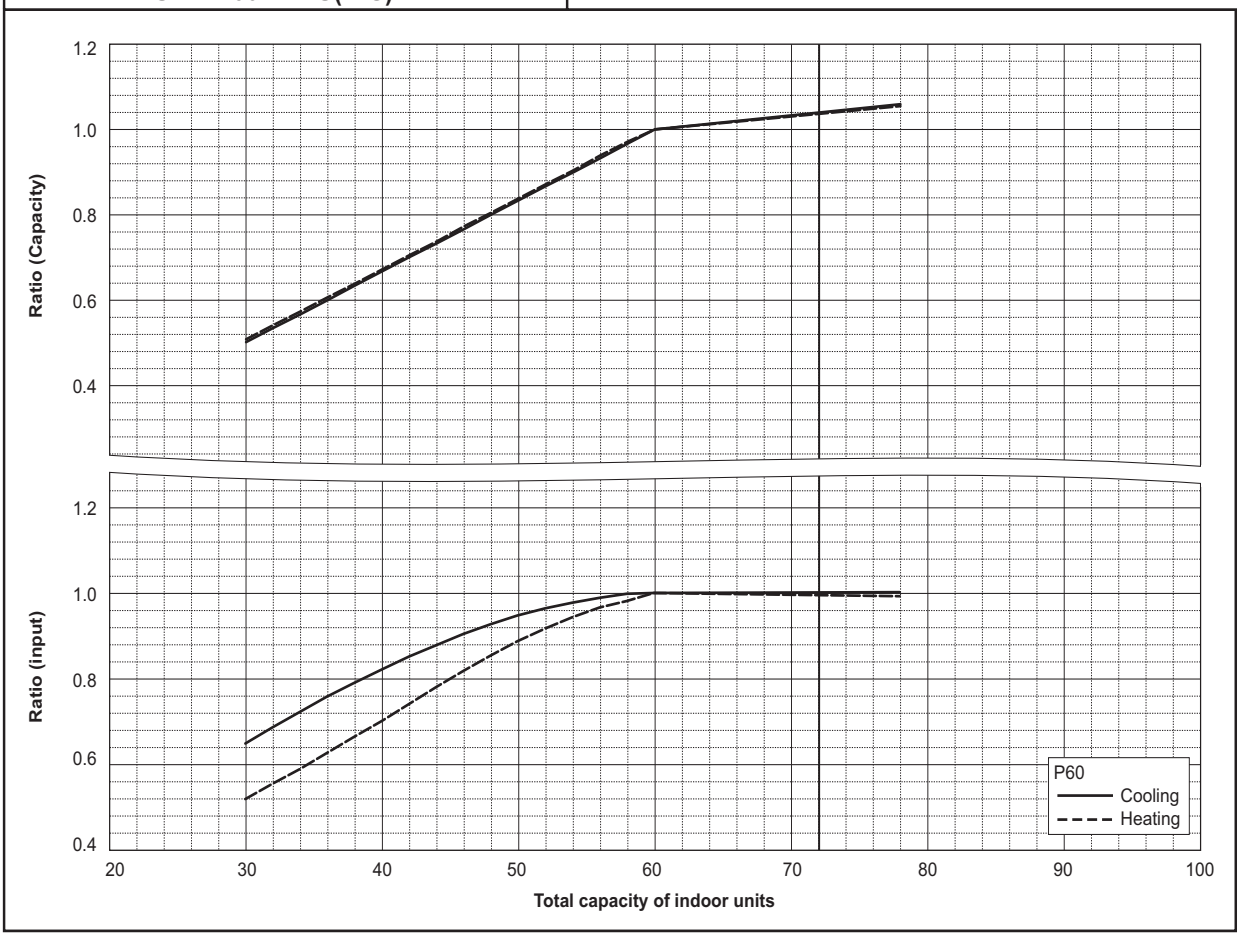
7-2-3. PUMY-P60NKMU (-BS)

PUMY-P60NKMU(-BS)



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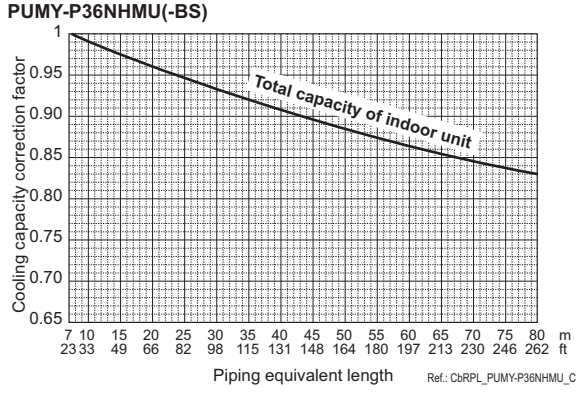
7-3. Correction by Refrigerant Piping Length

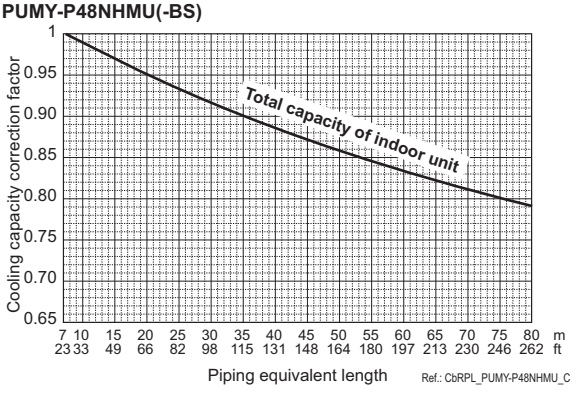
CITY MULTI systems can have extended piping lengths if certain limitations are followed, but cooling/heating capacity could be reduced. Using the following correction factor by equivalent piping length shown at 7-3-1 and 7-3-2, capacity can be found. 7-3-3 shows how to obtain the equivalent piping length.

7-3-1. Cooling Capacity Correction

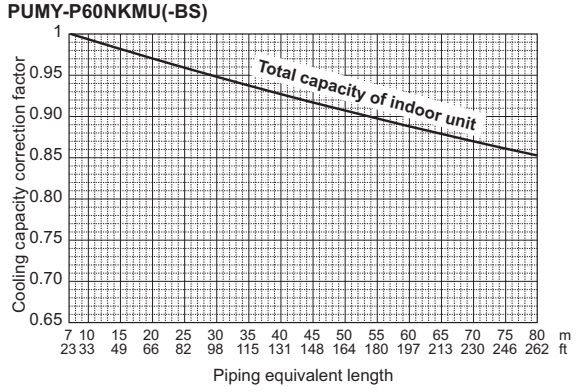
PUMY-P36NHMU(-BS)


Cooling capacity correction factor
1
0.95
0.90
0.85
0.80
0.75
0.70
0.65
Total capacity of indoor unit
7 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 m
23 33 49 66 82 98 115 131 148 164 180 197 213 230 246 262 ft
Piping equivalent length
Ref.: CbRPL_PUMY-P36NHMU_C

PUMY-P48NHMU(-BS)

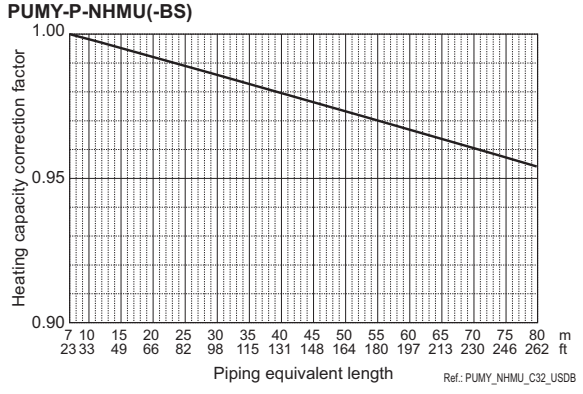

Cooling capacity correction factor
1
0.95
0.90
0.85
0.80
0.75
0.70
0.65
Total capacity of indoor unit
7 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 m
23 33 49 66 82 98 115 131 148 164 180 197 213 230 246 262 ft
Piping equivalent length
Ref.: CbRPL_PUMY-P48NHMU_C

PUMY-P60NKMU(-BS)

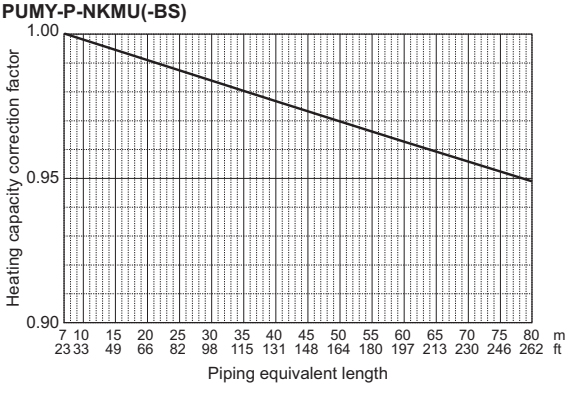


7-3-2. Heating Capacity Correction

PUMY-P-NHMU(-BS)



PUMY-P-NKMU(-BS)



7-3-3. How to Obtain the Equivalent Piping Length

1. PUMY-P-NHMU/NKMU(-BS)

Equivalent length[m]= (Actual piping length to the farthest indoor unit) + (0.30 x number of bends in the piping)
Equivalent length[ft.]= (Actual piping length to the farthest indoor unit) + (0.99 x number of bends in the piping)

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7-4. Correction at Frost and Defrost

Due to frost on the outdoor heat exchanger and the automatic defrost operation, the heating capacity of the outdoor unit can be calculated by multiplying the correction factor shown in the table below.

Table of correction factor at frost and defrost

Outdoor inlet air temp. °F	43	39	36	34	32	28	25	21	18	14	-4
Outdoor inlet air temp. °C	6	4	2	1	0	-2	-4	-6	-8	-10	-20
PUMY-P36, 48NHMU(-BS)	1.0	0.98	0.89	0.88	0.88	0.89	0.9	0.95	0.95	0.95	-
PUMY-P60NKMU(-BS)	1.0	0.98	0.855	0.85	0.845	0.89	0.9	0.95	0.95	0.95	0.95

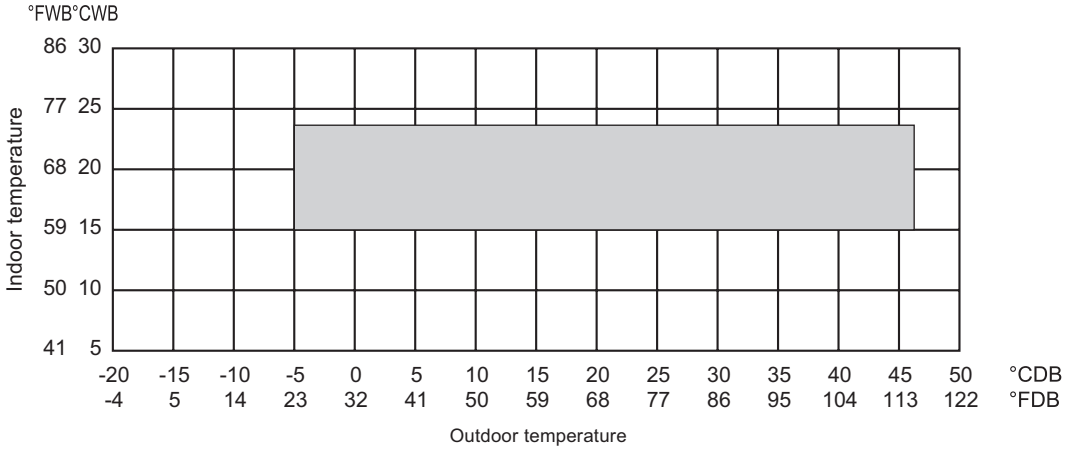
* The correction factors in the table above are used for a full-load and above.
Use the formula below to calculate the correction factor to use for a partial load.
Correction factor for partial load: K
Correction factor for a full load and above: K_0
Partial load factor: A

$$K = 1 - (1 - K_0) \times A$$

7-5. Operation Temperature Range

7-5-1. PUMY-P-NHMU/NKMU(-BS)

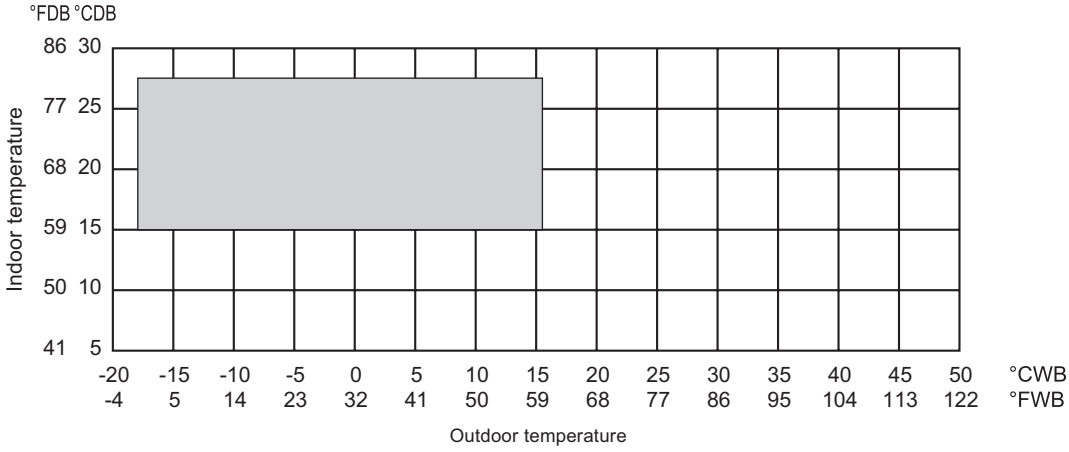
• Cooling



*50 to 115°FD.B.(10 to 46°CD.B.) : in case of connecting PKFY-P06/P08 type indoor unit.

7-5-2. PUMY-P-NHMU(-BS)

• Heating



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* Tables above show published performance operation range. Units will try to continue to cool and heat above and below temperature range shown, but there is no published performance data at these ranges.

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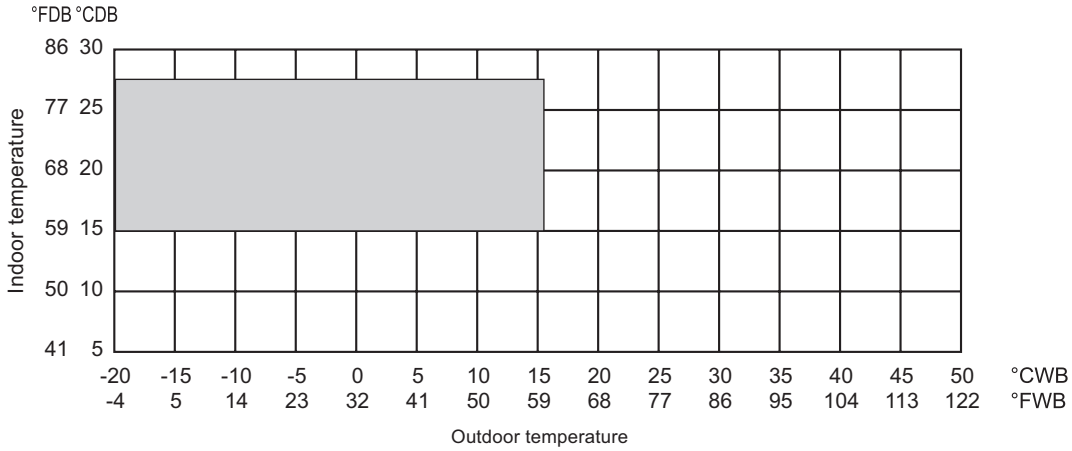
7-5-3. PUMY-P-NKMU(-BS)

• Heating



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8. OPTIONAL PARTS

8-1. Branch Joint

CITY MULTI piping can be easily done with branch joints and headers provided by MITSUBISHI ELECTRIC CORP. One kind of Joint sets are avaialable for use. Details for installing the branch joint can be found in the System Design sections, or in the Installation Manual.

CMY-Y62-G

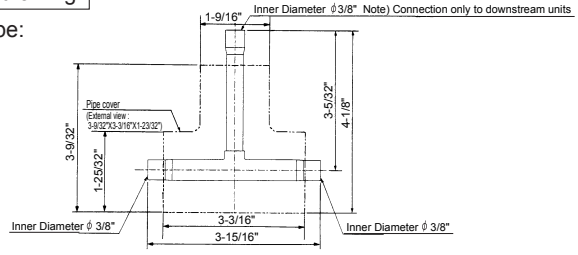
Ref.: 7FAGFA
in.

1. Specification

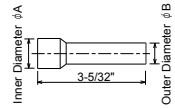
Items		Details
Main	Number of ports	2 ports
	Number of branch joints	One for each liquid and gas pipe
	Pipe material	Phosphorus deoxidized copper C1220T-OL (JIS H3300)
Accessory	Insulation material	Foamed polyethylene (one for each liquid and gas pipe)
	Reducer	10 reducers of 7 types (Refer to the external drawing for details.)

2. External drawing

For liquid pipe:

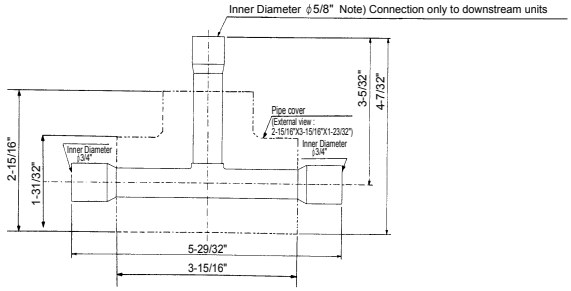


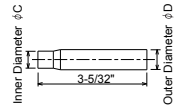
Reducer (Accessory):



A (Inner Diameter)	B (Outer Diameter)	Number of reducers
ϕ 1/2"	ϕ 3/8"	2
ϕ 3/4"	ϕ 5/8"	1
ϕ 7/8"	ϕ 3/4"	1

For gas pipe:





C (Inner Diameter)	D (Outer Diameter)	Number of reducers
ϕ 1/4"	ϕ 3/8"	2
ϕ 1/2"	ϕ 5/8"	1
ϕ 1/2"	ϕ 3/4"	1
ϕ 5/8"	ϕ 3/4"	2

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8-2. Header

CITY MULTI piping can be easily done with branch joints and headers provided by MITSUBISHI ELECTRIC CORP. There are two header sets used for piping PUMY. Details for installing the headers can be found in the System Design sections, or Installation Manual.

CMY-Y64-G

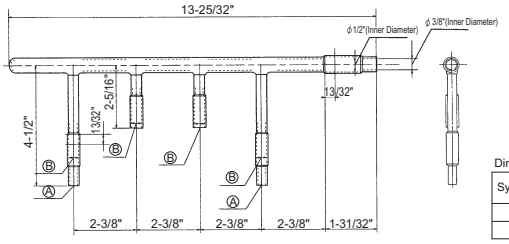
Ref.: 7FAGFB
in.

1. Specification

Items		Details
Main	Number of ports	3 ~ 4 ports
	Number of branch joints	One for each liquid and gas pipe
	Pipe material	Phosphorus deoxidized copper C1220T-OL (JIS H3300)
Accessory	Insulation material	Foamed polyethylene
	Reducer	7 reducers of 5 types
	Cap	2 caps of 2 different types for each liquid and gas pipe ; 4 caps in total

2. External drawing

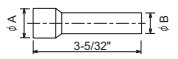
For liquid pipe:



Dimension table

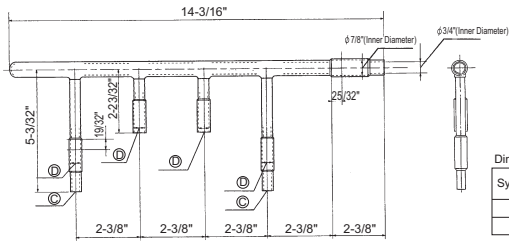
Symbol	Inner Diameter (mm)
Ⓐ	ϕ 1/4"
Ⓑ	ϕ 3/8"

Reducer (Accessory):



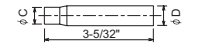
A (Inner Diameter)	B (Outer Diameter)	Number of reducers
ϕ 3/4"	ϕ 5/8"	1
ϕ 5/8"	ϕ 1/2"	2
ϕ 3/8"	ϕ 1/4"	2

For gas pipe:



Dimension table

Symbol	Inner Diameter (mm)
Ⓒ	ϕ 1/2"
Ⓓ	ϕ 5/8"



C (Inner Diameter)	D (Outer Diameter)	Number of reducers
ϕ 5/8"	ϕ 3/4"	1
ϕ 3/8"	ϕ 1/2"	1

CMY-Y68-G

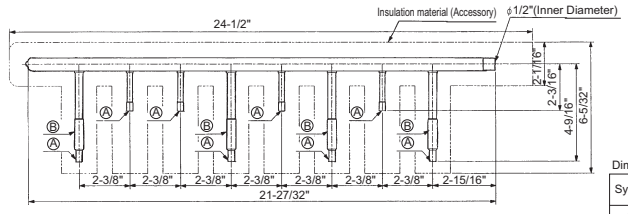
Ref.: 7FAGFC
in.

1. Specification

Items		Details
Main	Number of ports	5 ~ 8 ports
	Number of branch joints	One for each liquid and gas pipe
	Pipe material	Phosphorus deoxidized copper C1220T-OL (JIS H3300)
Accessory	Insulation material	Foamed polyethylene
	Reducer	3 reducers of 3 types
	Cap	3 caps for each liquid and gas pipe ; 6 in total

2. External drawing

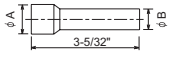
For liquid pipe:



Dimension table

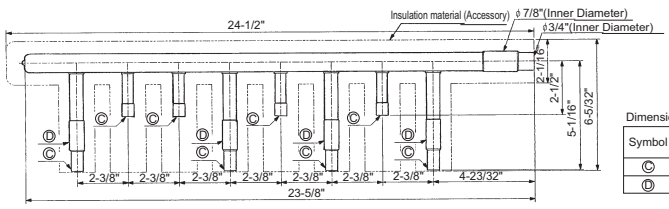
Symbol	Inner Diameter (mm)
Ⓐ	ϕ 1/4"
Ⓑ	ϕ 3/8"

Reducer (Accessory):



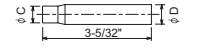
A (Inner Diameter)	B (Outer Diameter)	Number of reducers
ϕ 3/4"	ϕ 5/8"	1
ϕ 1/2"	ϕ 3/8"	1

For gas pipe:



Dimension table

Symbol	Inner Diameter (mm)
Ⓒ	ϕ 1/2"
Ⓓ	ϕ 5/8"



C (Inner Diameter)	D (Outer Diameter)	Number of reducers
ϕ 5/8"	ϕ 3/4"	1

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